ICF-22/22L

SERVICE MANUAL

ICF-22:
Canadian Model
AEP Model
E Model
AUS Model
SAF Model

ICF-22L:
AEP Model
UK Model

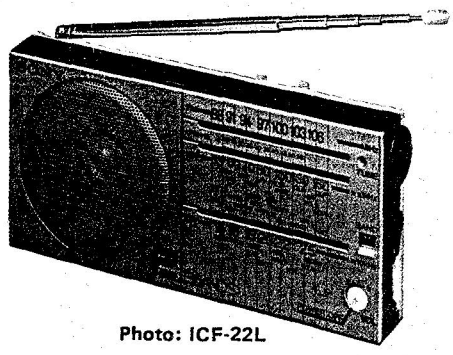


Photo: ICF-22L

Model ICF-22/22L are almost the same as ICF-25/25L. The difference between ICF-22/22L and ICF-25/25L is given in this manual.
Refer to the ICF-25/25L service manual about the other information.

PARTS LIST (ICF-22)

GENERAL SECTION

No.	Part No.	Description
15	3-892-814-31	(BLACK).....KNOB, TUNING
	3-892-814-41	(DARK SILVER)...KNOB, TUNING
	3-892-814-51	(PEARL WHITE)...KNOB, TUNING
19	3-892-855-01	KNOB, VOLUME
21	3-893-129-01	(BLACK).....NET, SPEAKER
	3-893-129-11	(DARK SILVER)...NET, SPEAKER
	3-893-129-21	(PEARL WHITE)...NET, SPEAKER
23	3-893-104-11	PLATE, BACK, DIAL
42	X-3893-115-1	(BLACK).....KNOB ASSY, BAND
	X-3893-115-2	(DARK SILVER)...KNOB ASSY, BAND
	X-3893-115-3	(PEARL WHITE)...KNOB ASSY, BAND
44	X-3893-120-1	(BLACK).....CABINET ASSY, FRONT
	X-3893-120-2	(DARK SILVER)...CABINET ASSY, FRONT
	X-3893-120-3	(PEARL WHITE)...CABINET ASSY, FRONT

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
72	3-703-910-01	(BLACK).....LABEL, COLOR
	3-703-921-01	(DARK SILVER)...LABEL, COLOR
	3-703-923-01	(PEARL WHITE)...LABEL, COLOR
75	3-893-135-01	(Canadian,AEP,AUS,SAF,Saudi Arabia) ...INDIVIDUAL CARTON
	3-893-136-01	(E).....INDIVIDUAL CARTON
78	3-990-069-11	MANUAL, INSTRUCTION
	3-990-069-41	(AEP)...MANUAL, INSTRUCTION
81	3-764-464-01	(AEP)...INSTRUCTION
82	*3-893-330-11	(SAF)...PLATE, SHIELD

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	1-501-222-31	ANTENNA, TELESCOPIC
503	A-3660-502-A	(AEP)...PC BOARD ASSY, MAIN
	A-3660-503-A	(Canadian,E,AUS,Saudi Arabia) .....PC BOARD ASSY, MAIN
	A-3660-545-A	(SAF).....PC BOARD ASSY, MAIN
C4	1-102-672-00	(Canadian,E,AUS,Saudi Arabia) ...CERAMIC 24PF 5% 50V
	1-102-883-00	(AEP).....CERAMIC 27PF 5% 50V
	1-102-714-11	(SAF).....CERAMIC 10PF 50V
L1	*1-401-495-11	(Canadian,AEP,E,AUS,Saudi Arabia) ...LOADING ANTENNA COIL
L4	*1-422-184-11	(Canadian,E,AUS,SAF,Saudi Arabia) ...COIL, AIR-CORE
L5	1-422-131-00	(Canadian,E,AUS,Saudi Arabia) ...COIL, FM OSC
	1-422-127-11	(SAF).....COIL, FM OSC
R1	1-247-843-11	(SAF)...CARBON 3.3K 5% 1/6W
	1-247-719-11	(Canadian,E,AEP,AUS,Saudi Arabia) ...CARBON 3.3K 5% 1/4W
R8	1-247-719-11	(Canadian,E,AEP,AUS,Saudi Arabia) ...CARBON 3.3K 5% 1/4W
SP	1-503-684-11	SPEAKER

— Continued on page 2 —

ICF-22: FM/MW/SW 3BAND RECEIVER
ICF-22L: FM/MW/LW 3BAND RECEIVER

SONY®

TR

SONY-01061

ICF-25L

SERVICE MANUAL

UK Model
AEP Model

SPECIFICATIONS

Frequency range	FM: 87.6–107 MHz (for European countries) 87.6–108 MHz (for the United Kingdom) MW: 530–1,605 kHz (566–187 m) LW: 150–255 kHz (2,000–1,176 m)
Antennas	FM: Telescopic antenna MW/LW: Built-in ferrite bar antenna
Speaker	Approx. 7.7 cm (3 inches) dia.
Power output	200 mW (at 10 % harmonic distortion)
Output	Earphone jack (minijack)
Power requirements	4.5 V dc, three batteries, IEC designation R6 (size AA) DC IN 4.5 V jack accepts:
Battery life	Approx. 35 hours with Sony SUM-3(NS) New Super batteries
Dimensions	Approx. 194 x 92 x 34 mm (w/h/d) ($7\frac{3}{4}$ x $3\frac{5}{8}$ x $1\frac{3}{8}$ inches) including projecting parts and controls with the carrying handle pushed in
Weight	Approx. 460 g (1 lb 1 oz), including batteries

FEATURES

- High selectivity and high sensitivity with one chip IC (Integrated Circuit).
- Fast tuning to key stations marked on the MW and LW dial scales for the ICF-25L.
- Two different power sources: batteries and house current.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

FM/MW/LW 3 BAND RECEIVER

SONY®

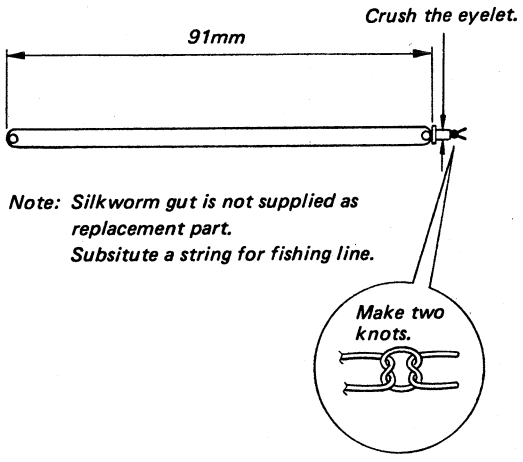
MICROFILM

1061

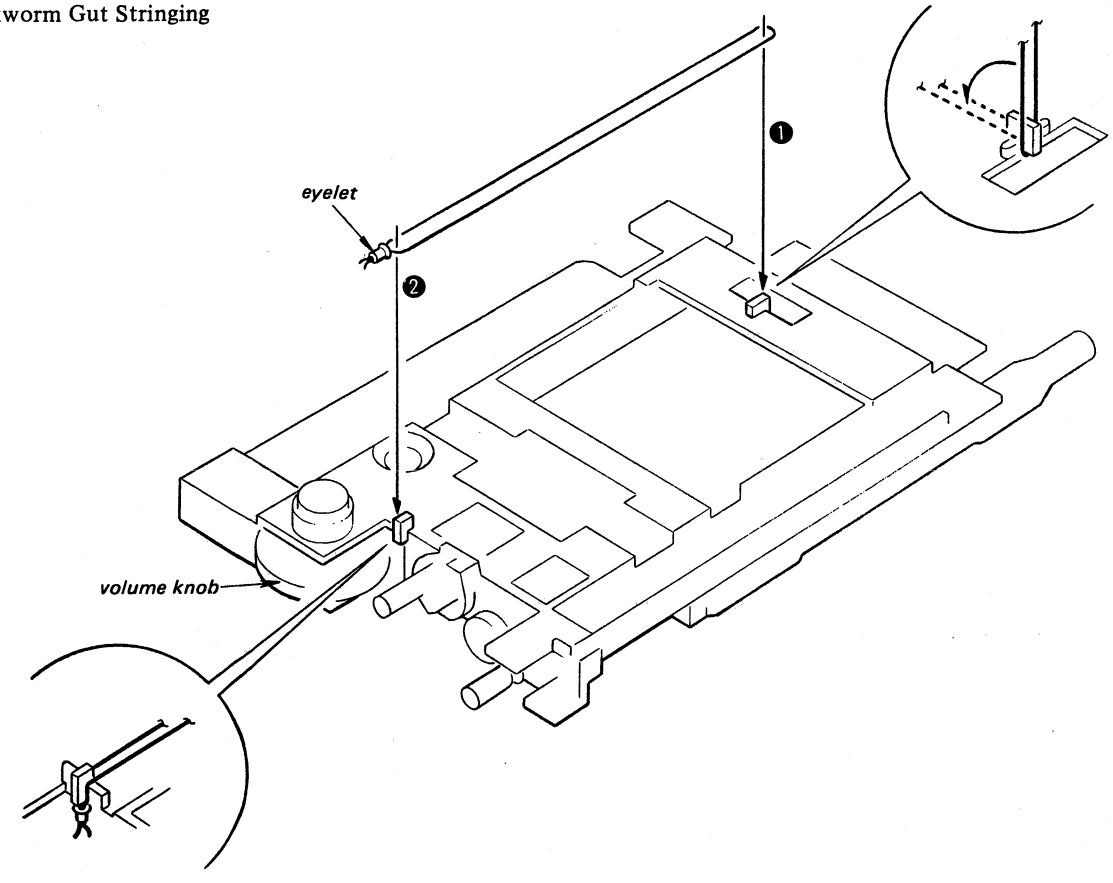
TR

DIAL CORD STRINGING

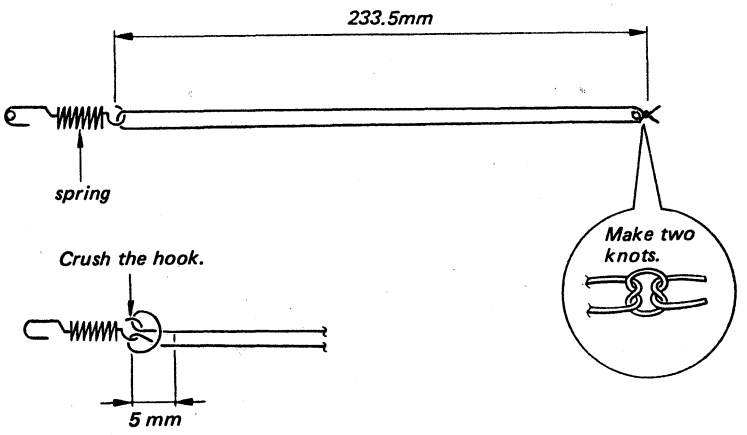
1) Silkworm Gut Preparation


Crush the eyelet.
91mm
Note: Silkworm gut is not supplied as replacement part.
Subsitute a string for fishing line.
Make two knots.

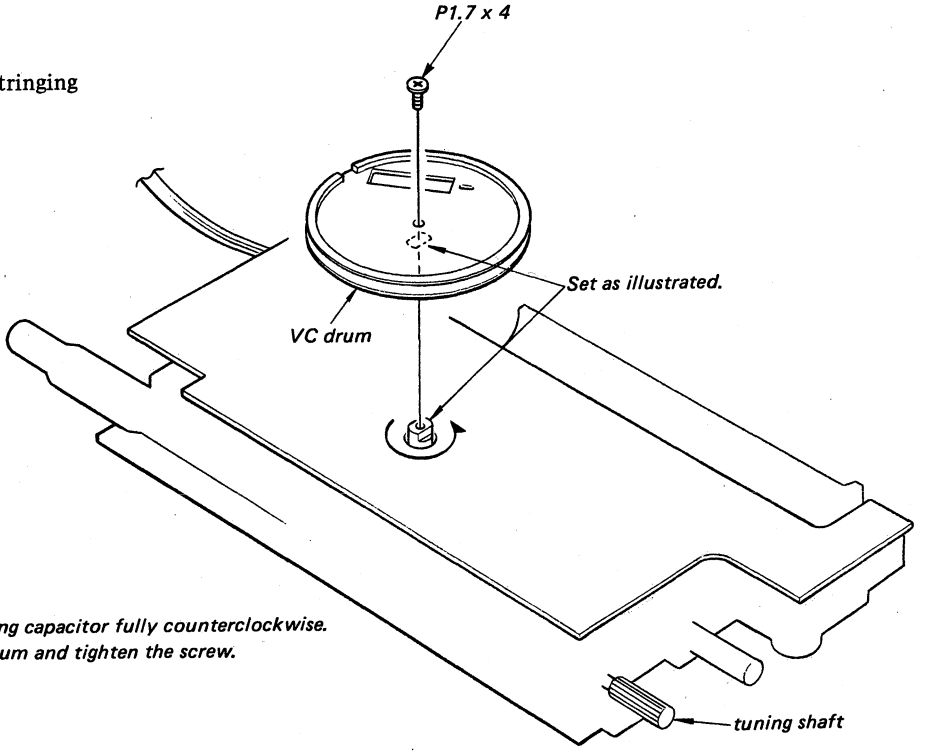
2) Silkworm Gut Stringing



3) Dial Cord Preparation

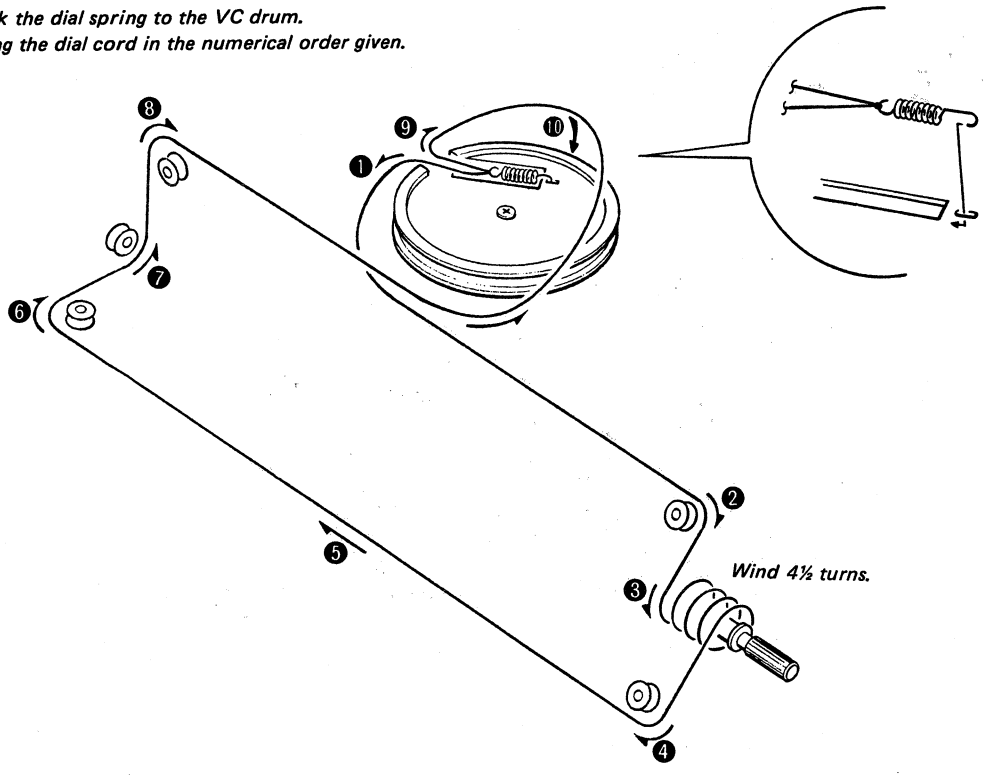


4) Dial Cord Stringing



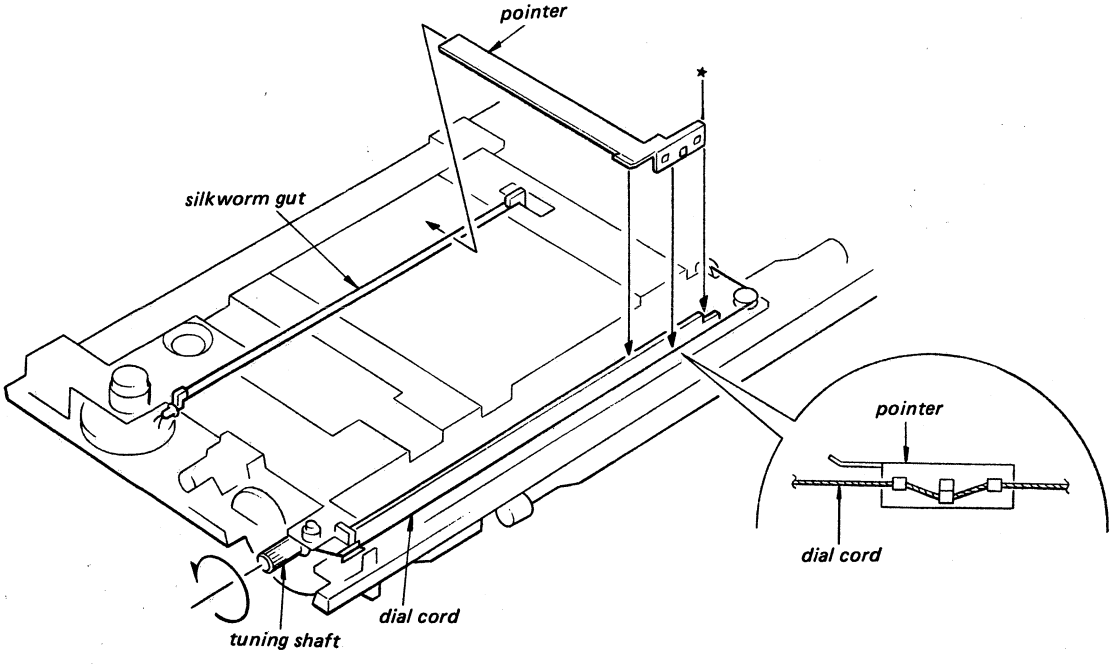
1. *Turn the tuning capacitor fully counterclockwise.*
2. *Set the VC drum and tighten the screw.*

3. Hook the dial spring to the VC drum.
4. String the dial cord in the numerical order given.



5) Pointer Installation

1. Turn the tuning shaft fully counterclockwise.
2. Install the pointer to the dial cord after setting side ★ of the pointer to end of the chassis each other.

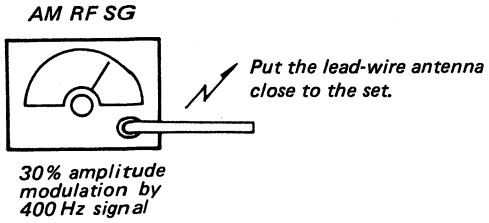


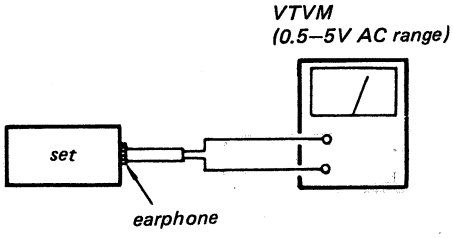
SECTION 2
ADJUSTMENTS

2-1. AM SECTION

– MW/LW –

- Perform the adjustment in the order of MW and LW.

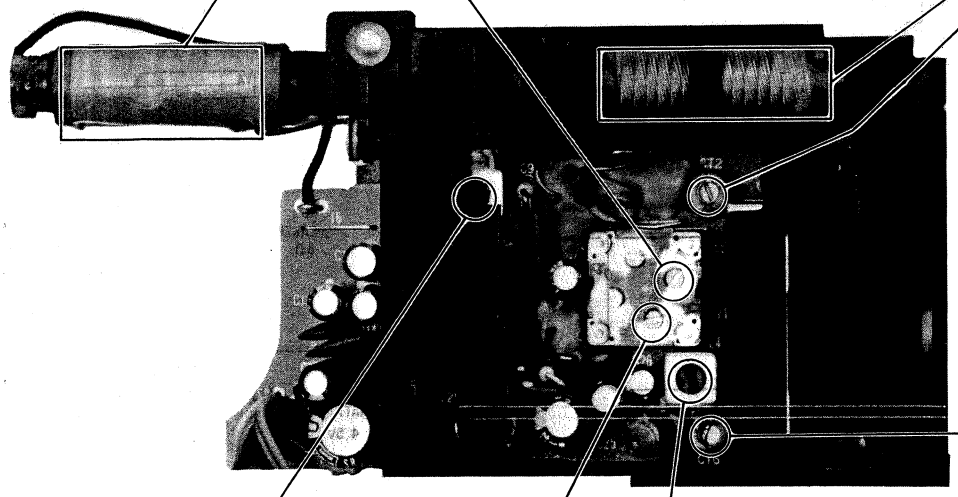




- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
620kHz	1,400kHz
L1	CT1

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L7	145kHz
CT2	260kHz



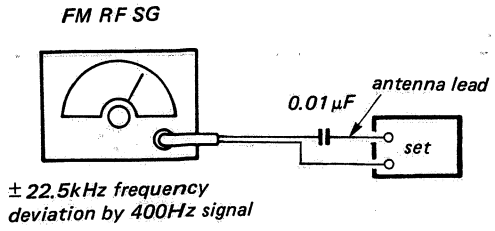
LW FREQUENCY COVERAGE ADJUSTMENT
Adjust for a maximum reading on VTVM.
145kHz
CT6

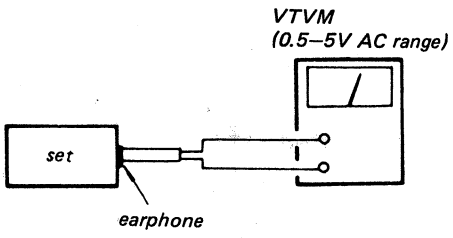
T1
455kHz
Adjust for a maximum reading on VTVM.
IF ALIGNMENT

CT5	L4
1,680kHz	520kHz
Adjust for a maximum reading on VTVM.	
MW FREQUENCY COVERAGE ADJUSTMENT	

2-2. FM SECTION

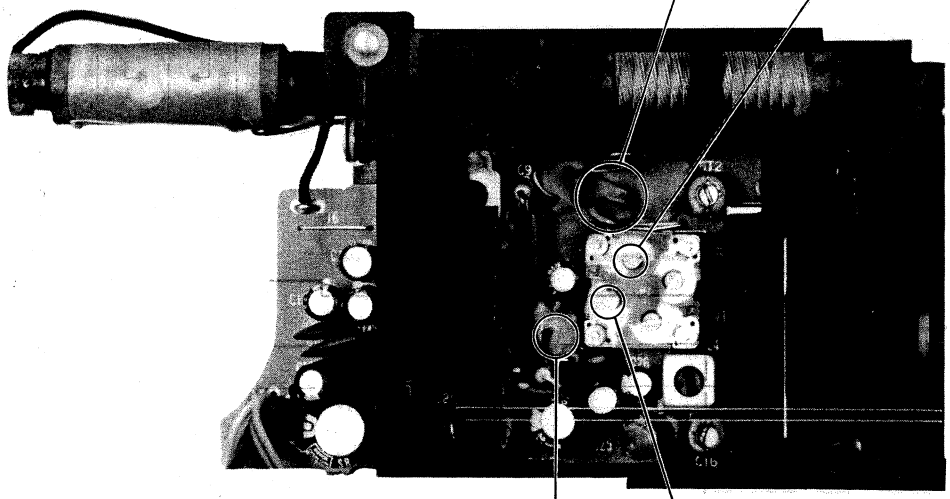
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.





FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
86.5MHz (87.35MHz)	109.5MHz (108MHz)
L2	CT3

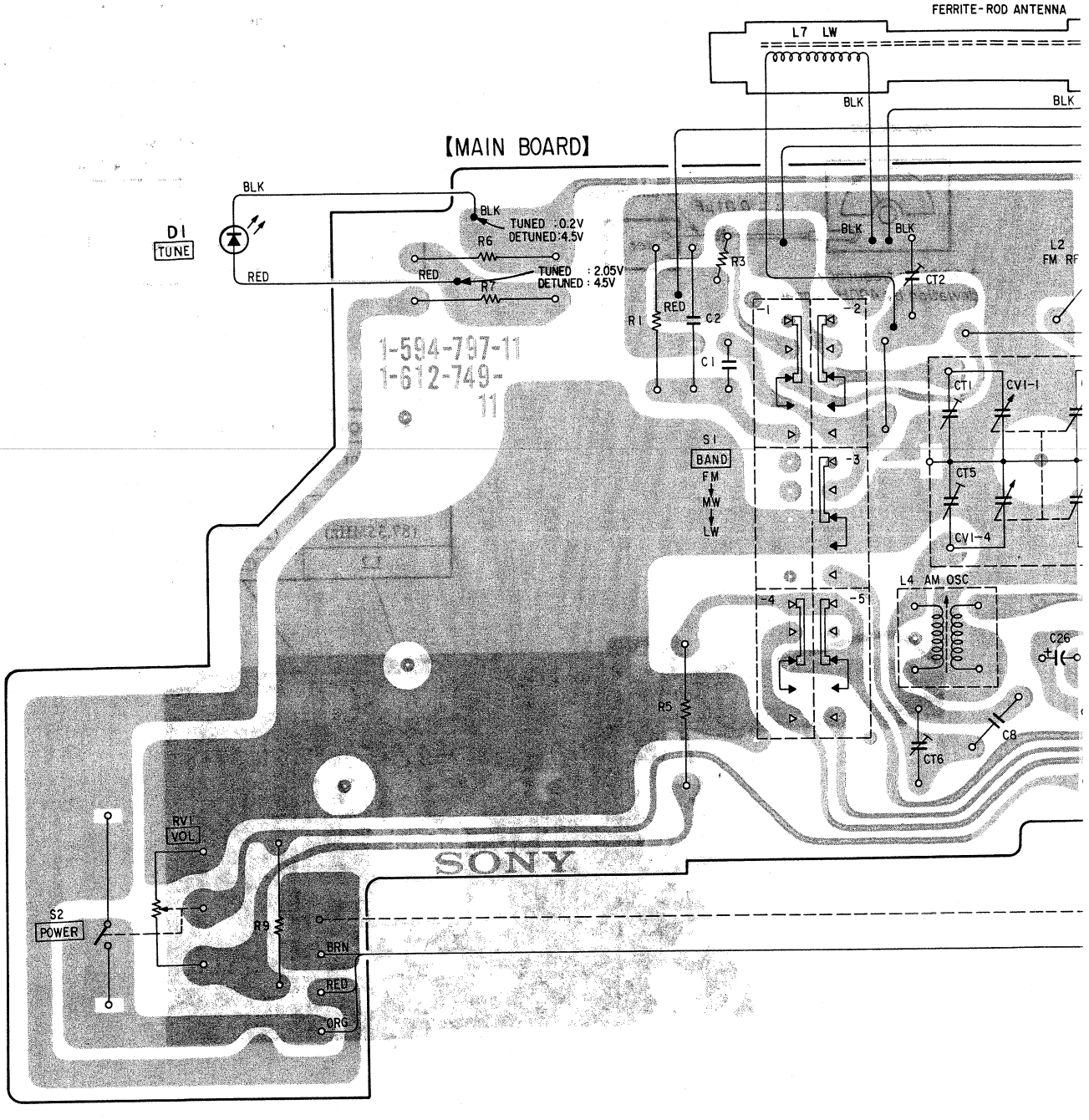
( ): AEP model



L3	CT4
86.5MHz (87.35MHz)	109.5MHz (108MHz)
Adjust for a maximum reading on VTVM.	
FM FREQUENCY COVERAGE ADJUSTMENT	

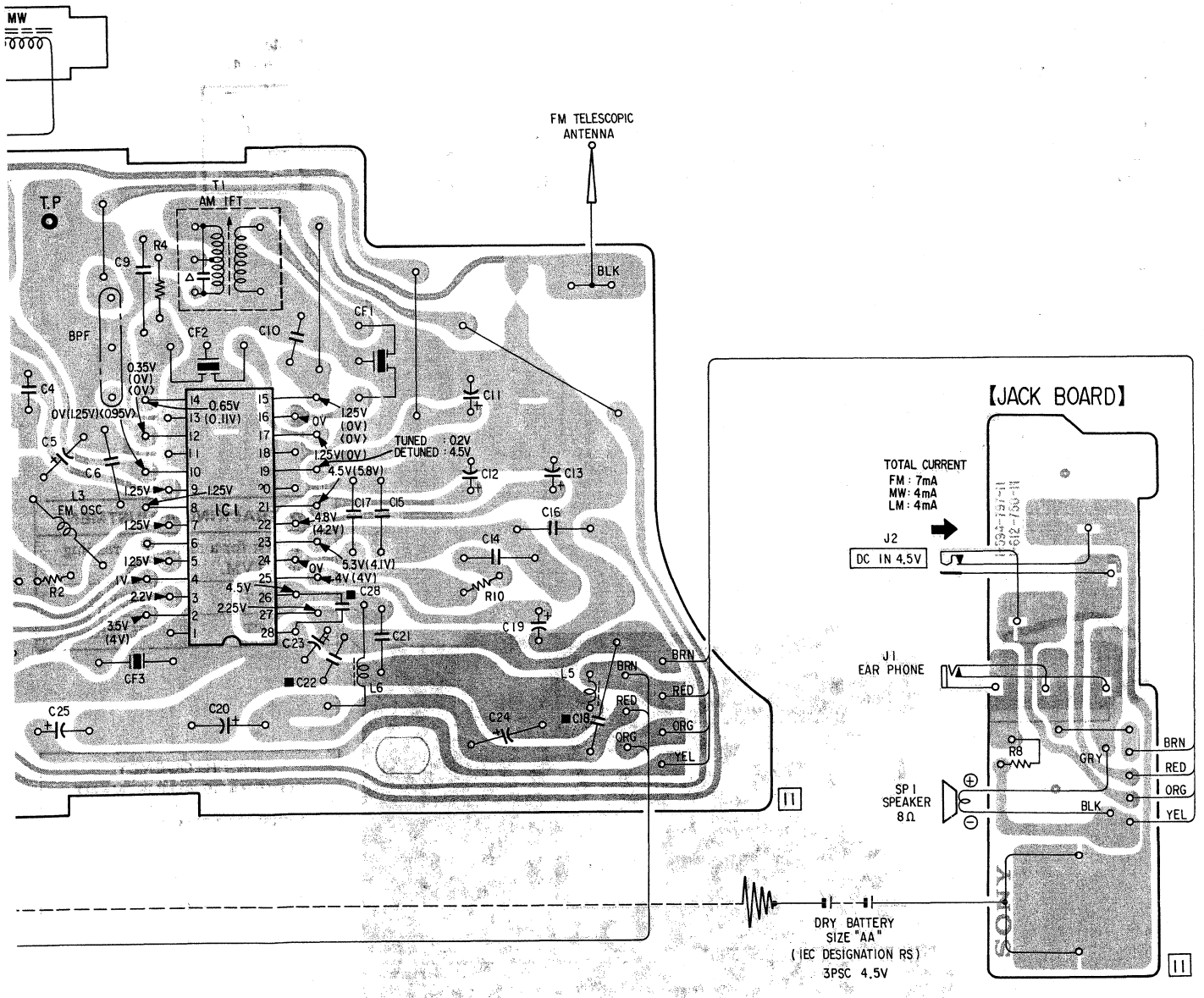
( ): AEP model

3-1. MOUNTING DIAGRAM

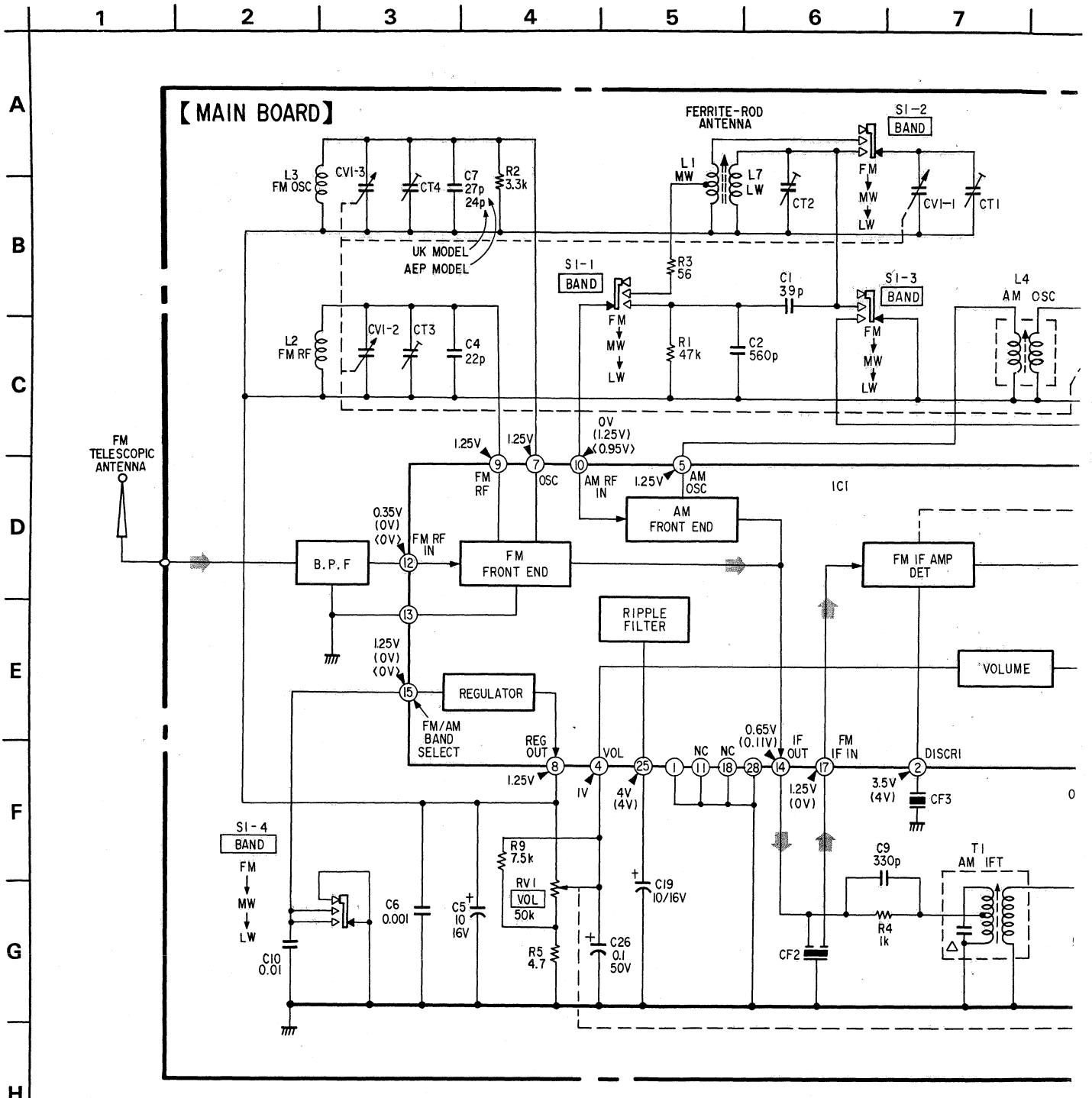


Note:

- ○—: parts extracted from the component side.
- ●—: parts extracted from the conductor side.
- ■ : part mounted on the conductor side.


9
10
11
12
13
14
15
MW
FM TELESCOPIC ANTENNA
BLK
T.P
T1
AM IFT
R4
C9
BPF
CF2
C10
CF1
C11
C4
0.35V (0V) (0V)
0V (1.25V) (0.95V)
C5
C6
L3 FM OSC
R2
IC1
0.65V
(0.11V)
1.25V (0V) (0V)
0V
1.25V (0V)
TUNED : 0.2V
DETUNED : 4.5V
4.5V (5.8V)
4.8V (4.2V)
6.3V (4.1V)
0V
4V (4V)
4.5V
2.25V
C12
C13
C14
C16
C17
C15
R10
C19
C28
C21
C23
C22
L6
L5
C18
C24
C20
C25
CF3
1.25V
2.2V
3.5V (4V)
1V
BRN
RED
ORG
YEL
【JACK BOARD】
TOTAL CURRENT
FM : 7mA
MW : 4mA
LM : 4mA
J2
DC IN 4.5V
J1
EAR PHONE
R8
SP1
SPEAKER
8Ω
GRY
BLK
SONY
DRY BATTERY
SIZE "AA"
(IEC DESIGNATION RS)
3PSC 4.5V

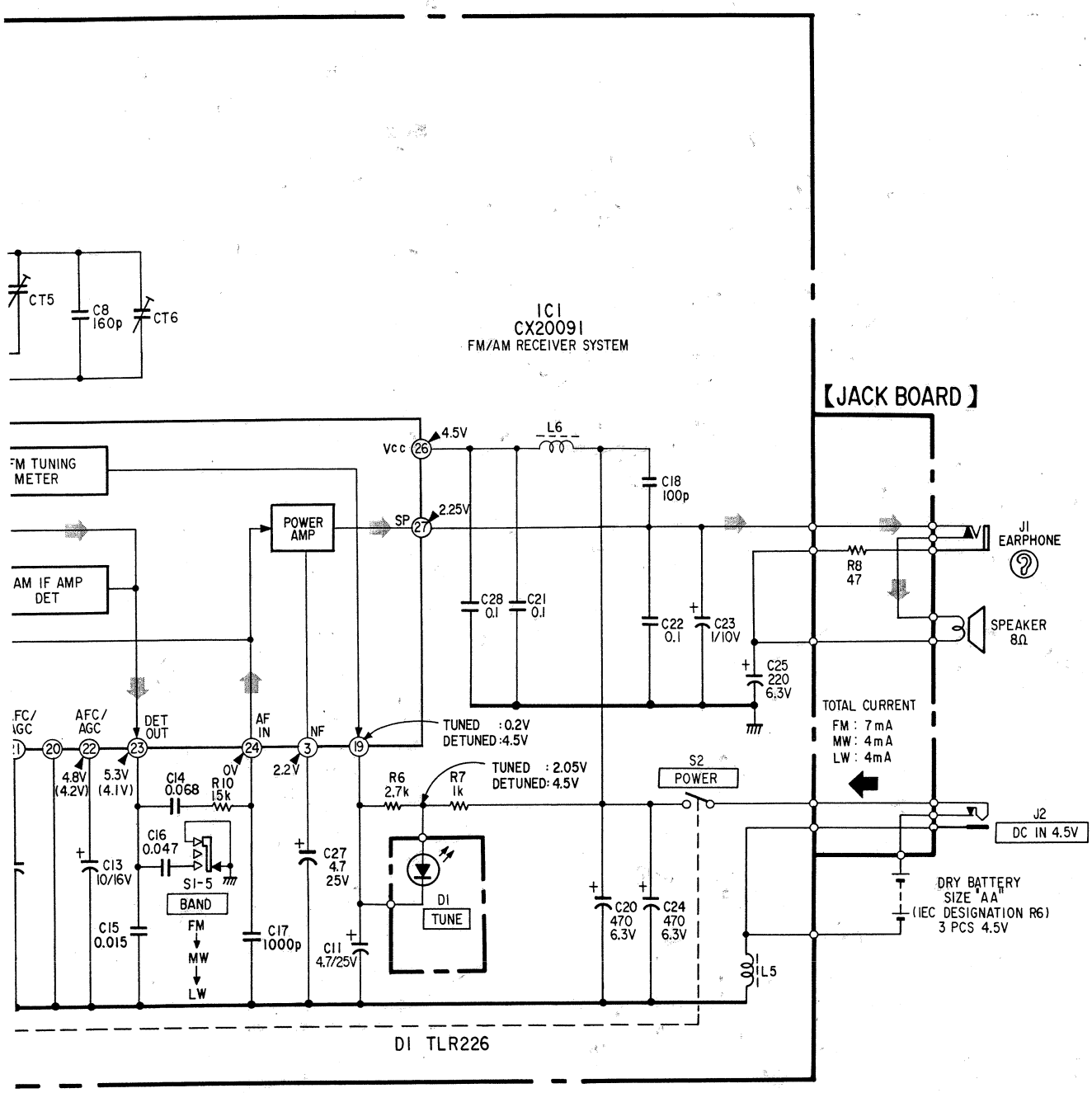
3-2. SCHEMATIC DIAGRAM



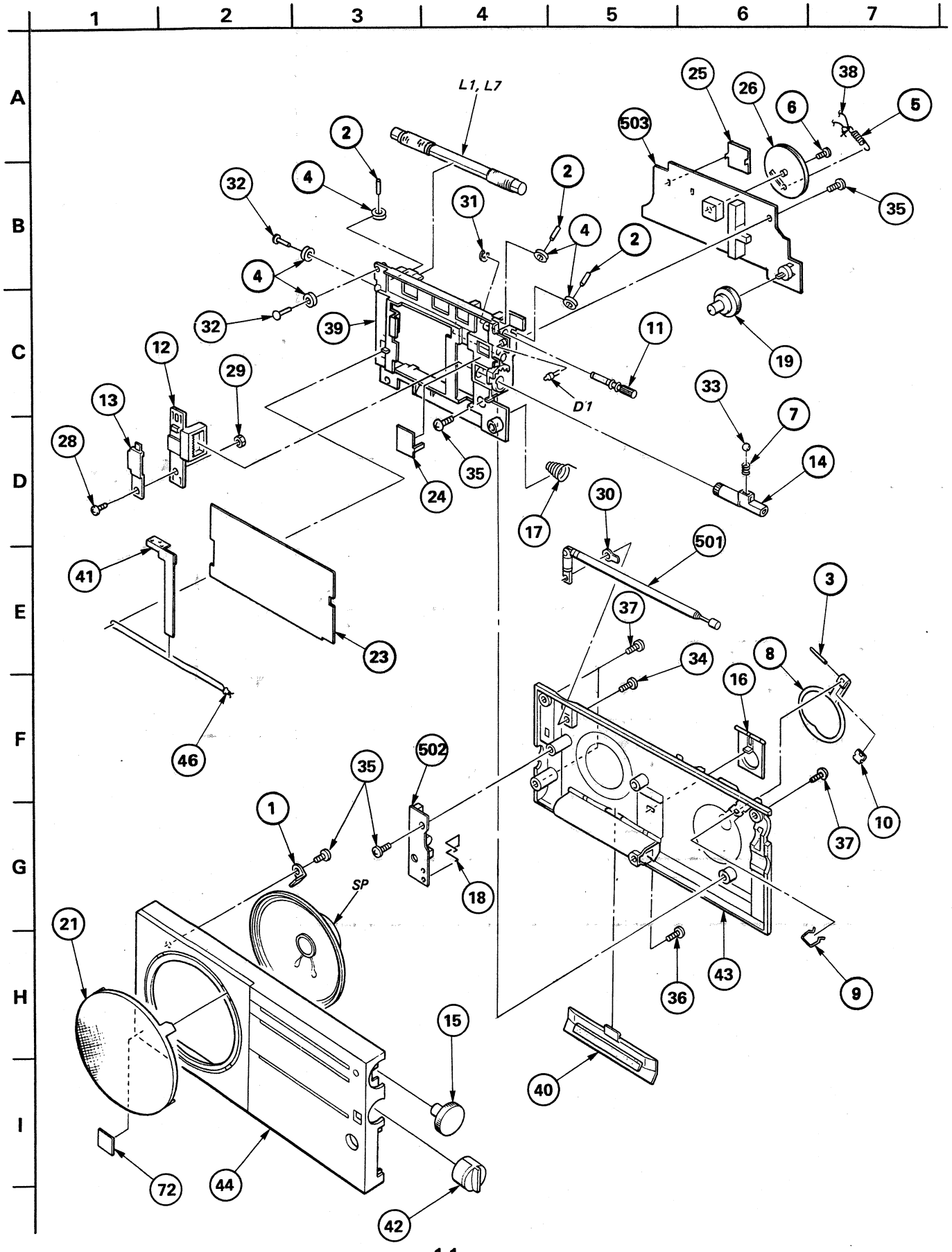
Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- △ : internal component.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are take under detuned conditions with a VOM.
  with a VOM.
  No mark : FM
  ( ) : MW
  < > : LW
- Voltage variations may be noted due to normal proc tion tolerances.
- ➡ Signal Path

Note: Voltages are measured with a VOM (50


CT5
C8
160p
CT6
IC1
CX20091
FM/AM RECEIVER SYSTEM
【JACK BOARD】
FM TUNING METER
AM IF AMP DET
POWER AMP
Vcc 26 4.5V
SP 27 2.25V
L6
C18 100p
C28 0.1
C21 0.1
C22 0.1
C23 1/10V
C25 220 6.3V
R8 47
J1 EARPHONE
SPEAKER 8Ω
TOTAL CURRENT
FM : 7mA
MW : 4mA
LW : 4mA
AFC/ AGC 20
AFC/ AGC 22
DET OUT 23
AF IN 24
NF 3
19
TUNED :0.2V
DETUNED :4.5V
4.8V (4.2V)
5.3V (4.1V)
C14 0.068
R10 15k
0V
2.2V
R6 2.7k
R7 1k
TUNED : 2.05V
DETUNED: 4.5V
S2 POWER
J2 DC IN 4.5V
C16 0.047
S1-5
BAND
FM
MW
LW
C13 10/16V
C15 0.015
C17 1000p
C27 4.7 25V
C11 4.7/25V
D1 TUNE
C20 470 6.3V
C24 470 6.3V
L5
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 3 PCS 4.5V
D1 TLR226

SECTION 4
EXPLODED VIEW AND PARTS LIST



GENERAL SECTION

No.	Part No.	Description
1	3-593-019-00	CLAW, SPEAKER
2	3-703-358-01	PIN, PARALLEL (DIA. 2X5)
3	3-703-358-08	PIN, PARALLEL (DIA. 2X20)
4	3-881-911-00	PULLEY
5	3-881-923-00	SPRING
6	7-627-552-47	SCREW (1.7X4)
7	3-890-231-00	SPRING, COMPRESSION
8	3-892-803-01	HANDLE
9	3-892-804-01	SPRING
10	3-892-805-01	STOPPER, HANDLE
11	3-892-806-01	SHAFT, TUNING
12	3-892-807-01	SLIDER
13	*3-892-808-01	ADJUSTOR
14	*3-892-809-01	SELECTOR, BAND
15	3-892-814-01	(SILVER)... KNOB, TUNING
15	3-892-814-11	(BLACK).... KNOB, TUNING (UK only)
15	3-892-814-21	(VIOLET)... KNOB, TUNING
16	3-892-817-01	STAND
17	3-892-818-01	SPRING
18	3-892-819-01	TERMINAL, BATTERY
19	3-892-820-01	KNOB, CONTROL
20	.....	
21	3-893-102-01	(SILVER)...GRILLE, SPEAKER
21	3-893-102-11	(VIOLET)...GRILLE, SPEAKER
21	3-893-102-21	(BLACK)....GRILLE, SPEAKER (UK only)
22	.....	
23	*3-893-104-01	PLATE, BACK, DIAL
24	*3-893-105-01	PLATE (C), SHIELD
25	*3-893-107-01	PLATE (B), SHIELD
26	3-893-108-01	DRUM, VC
27	.....	
28	7-621-775-40	SCREW +B 2.6X8
29	7-622-207-05	N 2.6, TYPE 2
30	7-623-508-01	LUG, 3
31	7-624-106-04	STOP RING 3.0, TYPE -E
32	7-625-712-40	RIVET 2X5
33	7-671-156-01	BALL, STAINLESS
34	7-682-548-04	SCREW +B 3X8
35	7-685-147-19	SCREW +BTP 3X10 TYPE2 N-S
36	7-685-547-14	SCREW +BTP 3X10 TYPE2 N-S
37	7-685-549-14	SCREW +BTP 3X14 TYPE2 N-S
38	9-911-825-32	STRING, TETRON DIAL (0.3)
39	3-893-109-01	CHASSIS
40	X-3892-809-1	BATTERY LID ASSY

GENERAL SECTION

No.	Part No.	Description
41	X-3892-810-1	POINTER ASSY
42	X-3893-113-1	(VIOLET)...KNOB, BAND ASSY
42	X-3892-807-1	(SILVER)...KNOB, BAND ASSY
42	X-3892-808-1	(BLACK)....KNOB, BAND ASSY
43	3-893-110-11	CABINET ASSY, REAR
44	X-3893-109-1	(UK;SILVER)....CABINET ASSY, FRONT
44	X-3893-110-1	(UK;BLACK).....CABINET ASSY, FRONT
44	X-3893-111-1	(AEP;VIOLET)...CABINET ASSY, FRONT
44	X-3893-112-1	(AEP;SILVER)...CABINET ASSY, FRONT
45	.....	
46	*7-623-605-01	EYELET 1.3X2.5

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
71	3-701-308-00	(BLACK).... LABEL, COLOR
71	3-701-316-00	(VIOLET)... LABEL, COLOR
71	3-703-729-00	(SILVER)... LABEL, COLOR
72	3-703-710-01	STICKER, SONY SYMBOL (12)
73	3-893-113-01	CUSHION
74	3-893-116-01	(AEP,UK)....INDIVIDUAL CARTON
74	3-893-117-01	(AEP)...INDIVIDUAL CARTON (WITH AC ADAPTOR)
75	3-893-124-01	CASE, ADAPTOR
76	3-985-622-61	MAT, MIRROR
77	3-995-995-11	(AEP,UK)....MANUAL, INSTRUCTION
77	3-995-995-41	(AEP).....MANUAL, INSTRUCTION
78 ⚠	1-463-534-11	(AEP)...ADAPTOR, AC-450
79	3-893-124-01	(AEP)...SLEEVE AC-450
80	3-985-622-41	SHEET, PROTECTION (FOR AC ADAPTOR)

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
- All capacitors are in µF. Common capacitors are omitted. Refer to the following lists for their part numbers.
  MF:µF, PF:µµF.

COILS
- MMH : mH, UH : µH

SEMICONDUCTORS
In each case, U : µ, for example:
UA···: µA···, UPA···: µPA···, UPC···: µPC, UPD···: µPD···

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	1-501-222-21	ANTENNA, TELESCOPIC			
502 *	1-612-750-11	PC BOARD, JACK			
503 *	A-3660-504-A	PC BOARD ASSY, MAIN			
BPF	1-235-171-00	FILTER, BAND PASS			
C1	1-102-965-00	CERAMIC	39PF	10%	50V
C2	1-102-115-00	CERAMIC	560PF	10%	50V
C4	1-102-959-00	CERAMIC	22PF	10%	50V
C5	1-123-356-00	ELECT	10MF	20%	16V
C6	1-102-074-00	CERAMIC	0.001MF	10%	50V
C7	1-102-672-00	(UK)... CERAMIC	24PF	5%	50V
C7	1-102-883-00	(AEP).. CERAMIC	27PF	5%	50V
C8	1-103-706-11	POLYSTYRENE	160PF	10%	50V
C9	1-102-112-00	CERAMIC	330PF	10%	50V
C10	1-161-013-00	CERAMIC	0.01MF	10%	25V
C11	1-123-369-00	ELECT	4.7MF	20%	25V
C12	1-123-356-00	ELECT	10MF	20%	16V
C13	1-123-356-00	ELECT	10MF	20%	16V
C14	1-161-023-00	CERAMIC	0.068MF	10%	25V
C15	1-161-053-00	CERAMIC	0.015MF	10%	25V
C16	1-161-036-00	CERAMIC	0.047MF	20%	25V
C17	1-161-039-00	CERAMIC	1000PF	5%	50V
C18	1-102-973-00	CERAMIC	100PF	5%	50V
C19	1-123-356-00	ELECT	10MF	20%	16V
C20	1-123-298-00	ELECT	470MF	20%	6.3V
C21	1-161-974-00	CERAMIC	0.1MF	0	16V
C22	1-161-974-00	CERAMIC	0.1MF	0	16V
C23	1-131-418-00	ELECT(SOLID)	1MF	20%	10V
C24	1-123-298-00	ELECT	470MF	20%	6.3V
C25	1-123-308-00	ELECT	220MF	20%	6.3V
C26	1-124-463-11	ELECT	0.1MF	20%	50V
C27	1-123-369-00	ELECT	4.7MF	20%	25V
C28	1-161-974-00	CERAMIC	0.1MF	0	16V
CF1	1-527-954-00	FILTER, MECHANICAL			
CF2	1-567-051-61	FILTER, CERAMIC (FM)			
CF3	1-567-051-61	FILTER, CERAMIC (FM)			
CT2	1-141-227-00	TRIMAR, CERAMIC			
CT6	1-141-227-00	TRIMAR, CERAMIC			
D1	8-719-812-26	DIODE TLR226			
IC1	8-752-009-10	IC CX20091			
J1	1-507-398-00	EARPHONE JACK			
J2	1-507-459-00	JACK DC IN 4.5V			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
L1	1-402-113-11	ANTENNA, FERRITE-ROD (MW/LW)			
L2	1-422-149-11	(AEP)...COIL, AIR-CORE			
L2	1-422-184-11	(UK)....COIL, AIR-CORE			
L3	1-422-121-00	(AEP)...COIL, FM OSCILLATION			
L3	1-422-131-00	(UK)....COIL, FM OSCILLATION			
L4	1-406-028-00	COIL, OSC (MW)			
L5	1-421-659-11	COIL, CHOKE 20UH			
L6	1-421-659-11	COIL, CHOKE 20UH			
L7	1-402-113-11	ANTENNA, FERRITE-ROD (MW/LW)			
R1	1-246-513-00	CARBON	47K	5%	1/4W
R2	1-247-143-00	CARBON	3.3K	5%	1/4W
R3	1-247-101-00	CARBON	56	5%	1/4W
R4	1-246-473-00	CARBON	1K	5%	1/4W
R5	1-247-147-00	CARBON	4.7K	5%	1/4W
R6	1-247-141-00	CARBON	2.7K	5%	1/4W
R7	1-246-473-00	CARBON	1K	5%	1/4W
R8	1-246-441-00	CARBON	47	5%	1/4W
R9	1-247-152-00	CARBON	7.5K	10%	1/4W
R10	1-247-159-00	CARBON	15K	5%	1/4W
S1	1-554-901-11	SWITCH, BAND SLIDE			
SP	1-503-370-11	SPEAKER			
T1	1-404-341-00	TRANSFORMER, IF			
VC1	1-151-429-00	CAP, TUNING, POLYETHYLENE			
VR1	1-230-363-11	RES, VAR, CARBON (WITH SW) 50K			

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF: μF, PF: μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.